

## REMARKS

This Amendment is in response to the Office Action dated January 23, 2008 in which claims 1, 4-14, 17-22 and 24-25 were initially rejected, and claims 2, 3, 15, 16 and 23 were objected to.

The Office Action states that claims 2 and 23 would be allowable if re-written in independent form. Applicants assume that claims 3, 15 and 16 (not specifically addressed in the body of the Office Action) would also be allowable.

### I. AMENDED SET OF CLAIMS

An amended set of claims is proposed in order to overcome the Examiner's objections. In this new set of claims:

- Original claim 1 is amended in order to clarify that the selection of the states is made before calculating the likelihood ratio.
- Original claim 25 is also amended in the same way.

### II. CLAIM REJECTIONS UNDER §103(a)

Claims 1, 4-14, 17-22 and 24-25 were rejected under §103(a) as being Examiner as being unpatentable over Hladik (U.S. Patent No. 6,192,501) in view of Kobayashi (U.S. Patent No. 6,873,665).

#### A. **Summary of the present Application**

The present application relates to a signal processing method making use of a MAP (Maximum A Posteriori) type algorithm. The method is based on a reduction in the number of states selected during the calculation of the likelihood ratio of the MAP algorithm, so as to produce a simplified MAP algorithm. In one example embodiment, this type of reduction is achieved particularly by using a "breadth-first" type algorithm.

#### B. **Hladik**

Hladik relates to a high data maximum a posteriori decoder for segmented trellis code words. More precisely, the method described in this document is based on the segmentation of a code word, both by the encoder and the decoder.

At coding, the encoder comes back periodically at known states, by inserting particular bits in the information sequence.

The MAP decoder takes advantage of knowing the state of the encoder and operates on code word segments as if they were individual code words.

However, Hladik does not describe, nor suggest, the step of reducing the number of states selected by said MAP type algorithm so as to calculate the said likelihood ratio, nor the step of assigning at least one determined value to the corresponding said forward and/or backward variable, so as to calculate an approximate likelihood ratio, at least for some non-selected states.

### C. Kobayashi

Kobayashi relates to a digital magnetic recording/reproducing apparatus, including an LVA (List Viterbi Algorithm).

The principle of the method described in this document is based on the replacement of a likelihood ratio and a path memory of one of the best sequence selected by the LVA algorithm, by a likelihood ratio and a path memory of one other best sequence, depending on some criterions.

This method allows minimization of the length of the memory paths, while keeping a good coding rate.

However, Kobayashi does not describe, nor suggest, the step of reducing the number of states selected by said MAP type algorithm so as to calculate the said likelihood ratio, but is based on a selection, from all the states, of only some sequences already selected by the algorithm.

Thus, the method described in this document compares some likelihood ratios already calculated for each state in order to eventually replace them by other, depending on some criterions.

Likelihood ratios are already all calculated by the algorithm, and only after a selection is made, in contrast to claims 1 and 25 of the present application, where the selection is made before the likelihood ratio is calculated, in order to reduce the number of likelihood ratio to be

calculated.

The Applicant proposes a new set of claims, in which claim 1 has been amended in order to point out this aspect of a selection of the states before calculating the likelihood ratios.

As neither Hladik nor Kobayashi disclose the selection of the states before calculating the likelihood ratios, in order to reduce the number of likelihood ratios to be calculated, claims 1 and 25 as currently amended are new and non obvious in view of Hladik and Kobayashi.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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